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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/833,540	04/11/2001	John T. Brown	SP00-130	4778
22928	7590	01/15/2004	EXAMINER	
CORNING INCORPORATED			LOPEZ, CARLOS N	
SP-TI-3-1				
CORNING, NY 14831			ART UNIT	PAPER NUMBER
			1731	

DATE MAILED: 01/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/833,540

Applicant(s)

BROWN ET AL.

Examiner

Carlos Lopez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-222 is/are pending in the application.
- 4a) Of the above claim(s) 54-222 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 IDS.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 1-53 on 10/28/03 is acknowledged.

Information Disclosure Statement

The references lined through were not considered for lacking a copy of the listed reference.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1) Claims 1-3, 17, 24-27 and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Siegfried (US 4,235,616). Siegfried discloses a method for making an optical fiber preform (Col.1, lines 31ff). The claimed step of generating heat from a combustion burner having a flame produced by igniting a substantially hydrogen-free fuel such as carbon monoxide and oxygen is disclosed in Col. 6, lines 63ff in order to avoid incorporation of water into the preform. The claimed step of flowing the glass precursor into the flame is shown in figure 4. The deposition step is disclosed in col. 7, lines 45ff.

As for claims 2-3 the glass precursors comprises germanium tetrachloride and SiCl₄ (col. 6, line 38).

As for claim 24, 33, the substrate tube where the soot is deposited is rotated, see col. 6, line 51.

As for claims 25-27, the continuously deposited soot containing silica and/or germania would form the claimed first through fourth segments.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2) Claims 4-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siegfried (US 4,235,616). Claim 4 additionally claims depositing the soot in a water-free atmosphere. In view that the gases supplied to the substrate tube only include hydrogen-free fuels and glass forming materials, it would be obvious to a person of ordinary skill in the art at the time the invention was made that the deposition of the soot would occur in a water-free atmosphere.

3) Claims 12-16, and 42-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siegfried (US 4,235,616) as applied to claim 1 above. As noted above Siegfried teaches of using hydrogen-free fuel in order to avoid the incorporation of "water" into the glass preform being formed but is silent disclosing a transferring the formed preform to another location in a substantially water-free atmosphere for

furthering processing. However, Examiner takes Official Notice that transferring a formed preform in a water-free atmosphere is well known in the art as disclosed by Lemon et al (US 6,266,980) and Daito (JP 09110454). Lemon teaches that performs may be placed in an argon filled holding vessel for further processing (Col. 2, lines 8ff). Additionally as shown by Daito, holding vessels contain clean air (dry air) for transporting an optical fiber preform for further processing (Daito's abstract). At the time the invention was made it would have been obvious to a person of ordinary skill in the art to have placed the formed preform of Siegfried into a holding vessel having water-free atmosphere as well known in the art as shown by Daito and Lemon in order to avoid the re-wetting of the preform.

As for claim 46, the holding vessel as disclosed by Lemon and Daito may obviously be used to transfer the preform to a consolidation furnace.

As for claims 42-45, chilling and passing the argon gas through a molecular sieve and recycling the argon gas are obvious methods to reduce the amount of water in a gas.

4) Claims 1-31, 46, and 49-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanamori et al (US 4,627,866). Kanamori discloses a method for producing an optical fiber preform (Abstract). The method comprises of injection a glass raw material such as germanium tetrachloride and SiCl_4 , a fluorine containing material and oxygen from a first nozzle, an inactive gas from a second nozzle concentric with the first nozzle and hydrogen from a third nozzle concentric with the

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second nozzle as show in figures 1-2. The fluorine containing material and glass raw material is flowed through a flame from an oxyhydrogen flame to produce a silica containing material, which is deposited onto a rotating seed rod (Col. 1, lines 50-60 & Col. 2, lines 20-25). Kanamori is silent disclosing using hydrogen-free fuel. However, Examiner takes Official Notice that substituting hydrogen fuel with hydrogen-free fuel is well known in the art. Siegfried (US 4,235,616) at lines 63ff, col. 6 and by Winterburn (US 3,275,408) at columns 1-2, disclose that substituting hydrogen for hydrogen-free fuels such as CO, CS₂ or the like, is well known in the art in order to avoid the deleterious effects of incorporating hydrogen into the glass preform. At the time the invention was made it would have been obvious to a person of ordinary skill in the art to have used hydrogen-free fuels in Kanamori's method of making a preform in view of the Examiner's official notice taken that substituting hydrogen containing fuels with hydrogen-free fuels is well known in the art in order to avoid the deleterious effects of hydrogen contamination of the optical fiber preform.

As for claim 4-6 and 10, in view that the gases supplied to the housing as shown in figure 1 would only include hydrogen-free fuels and glass forming materials, the claimed deposition would occur in a water-free atmosphere.

As for claims 7-9, in view that the preform is made using non-hydrogen fuels and glass forming material it would be obvious that the formed glass preform would be free of water.

As for claim 11, the burner 2 has a portion mounted in the housing shown in figure 1.

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As for claims 12-16 and 46 Examiner takes Official Notice that transferring a formed preform in a water-free atmosphere is well known in the art as disclosed by Lemon et al (US 6,266,980) and Daito (JP 09110454). Lemon teaches that performs may be placed in an argon filled holding for further processing (Col. 2, lines 8ff). Additionally as shown by Daito, holding vessels contain clean air (dry air) for transporting an optical fiber preform for further processing (Daito's abstract). At the time the invention was made it would have been obvious to a person of ordinary skill in the art to have placed the formed preform of Siegfried into a holding vessel having water-free atmosphere as well known in the art as shown by Daito and Lemon in order to avoid the re-wetting of the preform.

As for claim 46, the holding vessel as disclosed by Lemon and Daito may obviously be used to transfer the preform to a consolidation furnace.

As for claims 47-48, it would be obvious to have the holding vessel adapted to be inserted into a furnace in order to prevent any contamination from the surrounding atmosphere.

As for claim 19, fluorine-containing compounds are well known in the art.

As for claim 20-23, the fluorine first nozzle circumferentially surrounds the flame produced by the second and fourth nozzles wherein the first nozzle is considered a radially directed port and the frame forming the nozzles as the claimed shield.

As for claims 24-31, the continuously deposited soot containing fluorine, silica and/or germania would form the claimed first through fourth segments.

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As for claim 49, as noted by Winterburn, carbon monoxide flames do not provide a high exothermic reaction (col. 2, lines 1ff), thus it would be obvious to have conducted routine experimentation in order to provide the optimum glass precursor to fuel ratio that would provide sufficient heat to hydrolyze the glass forming material.

As for claim 50, the glass precursors as noted by Kanamori are passed through the center of the burner, the first nozzle, and the hydrogen of Kanamori, which is substituted with hydrogen-free fuel according to the official notice taken, surrounds the glass precursor first nozzle (See figure 2 of Kanamori).

As for claim 53, the doping level will be dependant on the desired refractive index.

5) Claims 34-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanamori et al (US 4,627,866) as applied to claim 1 above and in view of Senda (JP 57-183331). Kanamori is silent disclosing the depositing at least one glassy layer within the soot. However, Senda teaches of sintering the deposited soot into transparent glass, deemed as the claimed glassy barrier layer, controls the concentration distribution of the dopant (Col.4, lines 4-27). Hence, it would have been obvious to a person of ordinary skill in the art to have sintered Kanamori's deposited soot into transparent glass as taught by Senda in order to controls the concentration distribution of the dopant provided by Kanamori.

In regards to the claimed thickness of the barrier layer, Gouskov discloses that the glassy barrier layer is 80 μ m thick (Col. 10, line 9).

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As for claim 39, the doped preform obtained from the teachings of Kanamori would minimize the migration of dopant due to the inclusion of the barrier layer as taught by Gouskov.

6) Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kanamori et al (US 4,627,866) as applied to claim 1 above and in view of Seto et al (JP 63-123829). Kanamori is silent disclosing the using both hydrogen and hydrogen free fuel. As taught by Seto, to prevent the diffusions of OH groups to a core part of a preform and prevent soot layer cracking, is obtained by depositing glass particles by using hydrogen and hydrogen free fuel (See Abstract). At the time the invention was made it would have been obvious to a person of ordinary skill in the art to have used both hydrogen and hydrogen free fuel with Kanamori's method of making a preform as taught by Seto in order to prevent soot layer cracking and/or the diffusions of OH groups to a core part of a preform.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References B-G have been cited to show the state of the art.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Lopez whose telephone number is 571.272.1193. The examiner can normally be reached on Mon.-Fri. 8am - 5pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571.272.1190. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

CL


STEVEN P. GRIFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700